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Set Name Query

side by side

DB=EPAB,JPAB,DWPI,TDBD; PLUR=YES; OP=OR

L4 L2

L3 L2

DB=USPT,USOC; PLUR=YES; OP=OR

L2 L1 same (processor or microprocessor)

L1 (macrocell or (macro adj l cell)) same interfac\$3 same bus

Hit Count Set Name

result set

0 L4

0 L3

9 L2

53 L1

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L1 same (processor or microprocessor)	9

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 US Patents Full-Text Database
 US OCR Full-Text Database
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 JPO Abstracts Database
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side by side

DB=USPT,USOC; PLUR=YES; OP=OR

L2 L1 same (processor or microprocessor)

L1 (macrocell or (macro adj1 cell)) same interfac\$3 same bus

Hit Count Set Name

result set

9 L2

53 L1

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 US OCR Full-Text Database
 EPO Abstracts Database
 JPO Abstracts Database
 Derwent World Patents Index
 IBM Technical Disclosure Bulletins

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Name Query
 side by
 side

Hit
Count Set
 Name
 result
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DB=USPT,USOC; PLUR=YES; OP=OR

L1 710/305,300,22,52;370/423,463,466,257;326/37-
 41,62;713/501,502;712/10,11,13,15,32;709/253;711/104.ccls.

9389 L1

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L1 and L2	35

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Search:

L3

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<i>DB=USPT,USOC; PLUR=YES; OP=OR</i>		
<u>L3</u> 11 and L2	35	<u>L3</u>
<u>L2</u> (macrocell or (micro adj1 cell)) same interfac\$3 same bus	54	<u>L2</u>
<u>L1</u> 710/305,300,22,52;370/423,463,466,257;326/37- 41,62;713/501,502;712/10,11,13,15,32;709/253;711/104.ccls.	9389	<u>L1</u>

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1 A digital CMOS programmable clock generator
Holler, P.T.; Lee, H.;

ASIC Conference and Exhibit, 1994. Proceedings., Seventh Annual IEEE International , 19-23 Sept. 1994

Pages:280 - 287

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A digital CMOS programmable clock generator

Holler, P.T. Lee, H.

AT&T Bell Labs., Allentown, PA, USA ;

This paper appears in: ASIC Conference and Exhibit, 1994. Proceedings., Seventh Annual IEEE International

Meeting Date: 09/19/1994 - 09/23/1994

Publication Date: 19-23 Sept. 1994

Location: Rochester, NY USA

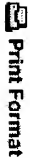
On page(s): 280 - 287

Reference Cited: 3

Inspec Accession Number: 4998172

Abstract:

The digital CMOS software programmable clock generator (PCG) was designed as a **macro cell** to provide quadrature clocks for the Hobbit based Personal Communicators. The PCG produces a highly accurate variable frequency system clock from 20 kHz to 100 MHz (10 kHz to 50 MHz in quadrature), while using a single inexpensive crystal oscillator as a reference. Both the frequency and tolerance of PCG can be programmed by the user. This cell resides inside the system control chip and has a **bus interface** allowing local storage of programmed data. Control signals which start and stop operation come from a power management portion of the chip. The output frequency can be changed on



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the fly

Index Terms:

20 kHz to 100 MHz CMOS digital integrated circuits Hobbit bus interface clocks crystal oscillator crystal oscillators digital CMOS macro cell output frequency personal communication networks personal communicators power management portion programmable clock generator pulse generators quadrature clocks system control chip variable frequency system clock 20 kHz to 100 MHz CMOS digital integrated circuits Hobbit bus interface clocks crystal oscillator crystal oscillators digital CMOS macro cell output frequency personal communication networks personal communicators power management portion programmable clock generator pulse generators quadrature clocks system control chip variable frequency system clock

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☐ 1. Document ID: US 6707314 B2

Using default format because multiple data bases are involved.

L3: Entry 1 of 35

File: USPT

Mar 16, 2004

US-PAT-NO: 6707314

DOCUMENT-IDENTIFIER: US 6707314 B2

TITLE: Integrated circuit device, electronic equipment, and method of placement of an integrated circuit device

DATE-ISSUED: March 16, 2004

INVENTOR-INFORMATION:

NAME	CITY	STATE	ZIP CODE	COUNTRY
Kasahara; Shoichiro	Minowa-machi			JP
Akiyama; Chisato	Himo			JP
Komatsu; Fumikazu	Okaya			JP

US-CL-CURRENT: 326/38; 326/39, 326/41, 716/17

Full	Title	Citation	Front	Review	Classification	Date	Reference	Abstract	Attachment	Claims	KWMC	Draw De
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☐ 2. Document ID: US 6532511 B1

L3: Entry 2 of 35

File: USPT

Mar 11, 2003

US-PAT-NO: 6532511

DOCUMENT-IDENTIFIER: US 6532511 B1

TITLE: Asynchronous centralized multi-channel DMA controller

Full	Title	Citation	Front	Review	Classification	Date	Reference	Abstract	Attachment	Claims	KWMC	Draw De
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☐ 3. Document ID: US 6442642 B1

L3: Entry 3 of 35

File: USPT

Aug 27, 2002

US-PAT-NO: 6442642

DOCUMENT-IDENTIFIER: US 6442642 B1

TITLE: System and method for providing an improved synchronous operation of an

h e b b g e e e f e ef b e

advanced peripheral bus with backward compatibility

Full	Title	Citation	Front	Review	Classification	Date	Reference	Attachments	Attachments	Claims	KWIC	Draw De
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☐ 4. Document ID: US 6130554 A

L3: Entry 4 of 35

File: USPT

Oct 10, 2000

US-PAT-NO: 6130554

DOCUMENT-IDENTIFIER: US 6130554 A

TITLE: Programmable integrated circuit having a test circuit for testing the integrity of routing resource structures

Full	Title	Citation	Front	Review	Classification	Date	Reference	Attachments	Attachments	Claims	KWIC	Draw De
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☐ 5. Document ID: US 6084428 A

L3: Entry 5 of 35

File: USPT

Jul 4, 2000

US-PAT-NO: 6084428

DOCUMENT-IDENTIFIER: US 6084428 A

TITLE: Programmable integrated circuit having shared programming conductors between columns of logic modules

Full	Title	Citation	Front	Review	Classification	Date	Reference	Attachments	Attachments	Claims	KWIC	Draw De
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☐ 6. Document ID: US 6081129 A

L3: Entry 6 of 35

File: USPT

Jun 27, 2000

US-PAT-NO: 6081129

DOCUMENT-IDENTIFIER: US 6081129 A

TITLE: Field programmable gate array having testable antifuse programming architecture and method therefore

Full	Title	Citation	Front	Review	Classification	Date	Reference	Attachments	Attachments	Claims	KWIC	Draw De
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☐ 7. Document ID: US 6066961 A

L3: Entry 7 of 35

File: USPT

May 23, 2000

US-PAT-NO: 6066961

DOCUMENT-IDENTIFIER: US 6066961 A

TITLE: Individually accessible macrocell

Full	Title	Citation	Front	Review	Classification	Date	Reference	Abstracts	Abstracts	Claims	KMIC	Draw De
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☐ 8. Document ID: US 6034545 A

L3: Entry 8 of 35

File: USPT

Mar 7, 2000

US-PAT-NO: 6034545

DOCUMENT-IDENTIFIER: US 6034545 A

TITLE: Macrocell for data processing circuit

Full	Title	Citation	Front	Review	Classification	Date	Reference	Abstracts	Abstracts	Claims	KMIC	Draw De
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☐ 9. Document ID: US 6018251 A

L3: Entry 9 of 35

File: USPT

Jan 25, 2000

US-PAT-NO: 6018251

DOCUMENT-IDENTIFIER: US 6018251 A

TITLE: Programmable integrated circuit having parallel routing conductors coupled to programming drivers in different locations

Full	Title	Citation	Front	Review	Classification	Date	Reference	Abstracts	Abstracts	Claims	KMIC	Draw De
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☐ 10. Document ID: US 6011408 A

L3: Entry 10 of 35

File: USPT

Jan 4, 2000

US-PAT-NO: 6011408

DOCUMENT-IDENTIFIER: US 6011408 A

TITLE: Programmable integrated circuit having a routing conductor that is driven with programming current from two different programming voltage terminals

Full	Title	Citation	Front	Review	Classification	Date	Reference	Abstracts	Abstracts	Claims	KMIC	Draw De
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Search Results - Record(s) 11 through 20 of 35 returned.

☐ 11. Document ID: US 5986469 A

Using default format because multiple data bases are involved.

L3: Entry 11 of 35

File: USPT

Nov 16, 1999

US-PAT-NO: 5986469

DOCUMENT-IDENTIFIER: US 5986469 A

TITLE: Programmable integrated circuit having L-shaped programming power buses that extend along sides of the integrated circuit

DATE-ISSUED: November 16, 1999

INVENTOR-INFORMATION:

NAME	CITY	STATE	ZIP CODE	COUNTRY
Eaton; David D.	San Jose	CA		
Kolze; Paige A.	San Jose	CA		
Apland; James M.	Gilroy	CA		

US-CL-CURRENT: 326/41; 326/39

Full	Title	Citation	Front	Review	Classification	Date	Reference	Abstracts	References	Claims	KOMC	Draw De
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☐ 12. Document ID: US 5966028 A

L3: Entry 12 of 35

File: USPT

Oct 12, 1999

US-PAT-NO: 5966028

DOCUMENT-IDENTIFIER: US 5966028 A

TITLE: Programming architecture for a programmable integrated circuit employing test antifuses and test transistors

Full	Title	Citation	Front	Review	Classification	Date	Reference	Abstracts	References	Claims	KOMC	Draw De
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☐ 13. Document ID: US 5955892 A

L3: Entry 13 of 35

File: USPT

Sep 21, 1999

US-PAT-NO: 5955892

DOCUMENT-IDENTIFIER: US 5955892 A

**** See image for Certificate of Correction ****

h e b b cg b cc e

TITLE: Programmable integrated circuit having test antifuse circuitry for testing programming conductors

Full	Title	Citation	Front	Review	Classification	Date	Reference	Abstract	Attachment	Claims	KWMC	Draw De
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☐ 14. Document ID: US 5869981 A

L3: Entry 14 of 35

File: USPT

Feb 9, 1999

US-PAT-NO: 5869981

DOCUMENT-IDENTIFIER: US 5869981 A

TITLE: High density programmable logic device

Full	Title	Citation	Front	Review	Classification	Date	Reference	Abstract	Attachment	Claims	KWMC	Draw De
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☐ 15. Document ID: US 5864542 A

L3: Entry 15 of 35

File: USPT

Jan 26, 1999

US-PAT-NO: 5864542

DOCUMENT-IDENTIFIER: US 5864542 A

TITLE: Scalable multimedia network

Full	Title	Citation	Front	Review	Classification	Date	Reference	Abstract	Attachment	Claims	KWMC	Draw De
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☐ 16. Document ID: US 5859543 A

L3: Entry 16 of 35

File: USPT

Jan 12, 1999

US-PAT-NO: 5859543

DOCUMENT-IDENTIFIER: US 5859543 A

TITLE: Programming architecture for a programmable integrated circuit employing antifuses

Full	Title	Citation	Front	Review	Classification	Date	Reference	Abstract	Attachment	Claims	KWMC	Draw De
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☐ 17. Document ID: US 5834947 A

L3: Entry 17 of 35

File: USPT

Nov 10, 1998

US-PAT-NO: 5834947

DOCUMENT-IDENTIFIER: US 5834947 A

TITLE: Microcontroller accessible macrocell

Full	Title	Citation	Front	Review	Classification	Date	Reference	Abstract	Attachment	Claims	KWMC	Draw De
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☐ 18. Document ID: US 5825201 A

L3: Entry 18 of 35

File: USPT

Oct 20, 1998

US-PAT-NO: 5825201

DOCUMENT-IDENTIFIER: US 5825201 A

TITLE: Programming architecture for a programmable integrated circuit employing antifuses

Full	Title	Citation	Front	Review	Classification	Date	Reference	Abstract	References	Claims	KWIC	Draw De
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☐ 19. Document ID: US 5825200 A

L3: Entry 19 of 35

File: USPT

Oct 20, 1998

US-PAT-NO: 5825200

DOCUMENT-IDENTIFIER: US 5825200 A

TITLE: Programming architecture for a programmable integrated circuit employing antifuses

Full	Title	Citation	Front	Review	Classification	Date	Reference	Abstract	References	Claims	KWIC	Draw De
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☐ 20. Document ID: US 5799017 A

L3: Entry 20 of 35

File: USPT

Aug 25, 1998

US-PAT-NO: 5799017

DOCUMENT-IDENTIFIER: US 5799017 A

TITLE: Scalable multimedia network

Full	Title	Citation	Front	Review	Classification	Date	Reference	Abstract	References	Claims	KWIC	Draw De
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☐ 1. Document ID: US 6735129 B2

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L2: Entry 1 of 9

File: USPT

May 11, 2004

US-PAT-NO: 6735129

DOCUMENT-IDENTIFIER: US 6735129 B2

TITLE: Semiconductor integrated circuit device

DATE-ISSUED: May 11, 2004

INVENTOR-INFORMATION:

NAME	CITY	STATE	ZIP CODE	COUNTRY
Akasaki; Hiroshi	Ome			JP
Miyaoka; Shuichi	Hannou			JP
Yokoyama; Yuji	Ome			JP
Hasegawa; Masatoshi	Ome			JP
Kurita; Kozaburo	Ome			JP

US-CL-CURRENT: 365/194; 365/189.05, 365/189.08, 365/233

Full	Title	Citation	Front	Review	Classification	Date	Reference	Abstract	Claims	KWMC	Draw De
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☐ 2. Document ID: US 6629288 B1

L2: Entry 2 of 9

File: USPT

Sep 30, 2003

US-PAT-NO: 6629288

DOCUMENT-IDENTIFIER: US 6629288 B1

TITLE: Single clock cycle CRC engine

Full	Title	Citation	Front	Review	Classification	Date	Reference	Abstract	Claims	KWMC	Draw De
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☐ 3. Document ID: US 6532511 B1

L2: Entry 3 of 9

File: USPT

Mar 11, 2003

US-PAT-NO: 6532511

DOCUMENT-IDENTIFIER: US 6532511 B1

h e b b g e e e f e ef b e

TITLE: Asochronous centralized multi-channel DMA controller

Full	Title	Citation	Front	Review	Classification	Date	Reference	Abstract	Attachment	Claims	KMIC	Draw De
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☐ 4. Document ID: US 6442642 B1

L2: Entry 4 of 9

File: USPT

Aug 27, 2002

US-PAT-NO: 6442642

DOCUMENT-IDENTIFIER: US 6442642 B1

TITLE: System and method for providing an improved synchronous operation of an advanced peripheral bus with backward compatibility

Full	Title	Citation	Front	Review	Classification	Date	Reference	Abstract	Attachment	Claims	KMIC	Draw De
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☐ 5. Document ID: US 6345052 B1

L2: Entry 5 of 9

File: USPT

Feb 5, 2002

US-PAT-NO: 6345052

DOCUMENT-IDENTIFIER: US 6345052 B1

TITLE: Method and apparatus for the reliable transition of status signals from an interface device when using a localized sampling architecture

Full	Title	Citation	Front	Review	Classification	Date	Reference	Abstract	Attachment	Claims	KMIC	Draw De
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☐ 6. Document ID: US 6094726 A

L2: Entry 6 of 9

File: USPT

Jul 25, 2000

US-PAT-NO: 6094726

DOCUMENT-IDENTIFIER: US 6094726 A

TITLE: Digital signal processor using a reconfigurable array of macrocells

Full	Title	Citation	Front	Review	Classification	Date	Reference	Abstract	Attachment	Claims	KMIC	Draw De
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☐ 7. Document ID: US 6064626 A

L2: Entry 7 of 9

File: USPT

May 16, 2000

US-PAT-NO: 6064626

DOCUMENT-IDENTIFIER: US 6064626 A

TITLE: Peripheral buses for integrated circuit

Full	Title	Citation	Front	Review	Classification	Date	Reference	Abstract	Attachment	Claims	KMIC	Draw De
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☐ 8. Document ID: US 6034545 A

L2: Entry 8 of 9

File: USPT

Mar 7, 2000

US-PAT-NO: 6034545

DOCUMENT-IDENTIFIER: US 6034545 A

TITLE: Macrocell for data processing circuit

Full	Title	Citation	Front	Review	Classification	Date	Reference	Abstract	Figures	Claims	KMC	Draw De
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☐ 9. Document ID: US 5832255 A

L2: Entry 9 of 9

File: USPT

Nov 3, 1998

US-PAT-NO: 5832255

DOCUMENT-IDENTIFIER: US 5832255 A

TITLE: System and method for selecting a signal source to trigger a microprocessor counter/timer macro cell

Full	Title	Citation	Front	Review	Classification	Date	Reference	Abstract	Figures	Claims	KMC	Draw De
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L1 same (processor or microprocessor)	9

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L2: Entry 5 of 9

File: USPT

Feb 5, 2002

DOCUMENT-IDENTIFIER: US 6345052 B1

TITLE: Method and apparatus for the reliable transition of status signals from an interface device when using a localized sampling architecture

Brief Summary Text (8):

Apart from the need for a simplified architecture for satisfying the timing requirements at the ATM-PHY interface, it will be appreciated by persons skilled in the art that the UTOPIA interface requires zero wait-state reaction to its input control signals. Routing delays at both the top-level and within each macro-cell can contribute to timing problems when interfacing the ATM layer with PHY layers. As a result, an ATM cell processor macro-cell must predict the next state of the input signals from the UTOPIA bus in order that the ATM cell processor can configure its outputs accordingly so as to avoid the possibility of incorrect predictions resulting in lost cells or FIFO overruns. If input control signals from the UTOPIA bus do not behave as predicted, a timing mechanism must be provided to ensure that the output status signals from the ATM cell processor continue to perform correctly in such circumstances. It would be advantageous if such a timing mechanism would extend to both single-channel and multi-channel implementations. It would be also advantageous if such a timing mechanism would enable the ATM-PHY interface device to maintain set-up and hold timing constraints that are much tighter than those required by the UTOPIA standard for the ATM-PHY interface. This would allow systems interfacing with the ATM-PHY interface device the flexibility of having more relaxed timing, thereby reducing design cycle time and the cost at both the device and system level.

Detailed Description Text (2):

Referring to FIG. 1, there is shown a known system for interfacing an ATM-PHY interface device 10 with other ATM layer devices (not shown) on the system-side 11 and with physical layer (PHY) links on the line-side 13. In the illustrative embodiment, ATM-PHY interface device 10 is a quad-channel device that interfaces, on the system side, with other ATM layer devices through an 8 or 16 bit wide UTOPIA bus and on the line-side, with up to four PHY layer devices. ATM-PHY interface device 10 includes a transmit-side 12 having four transmit cell processors 14, and a receive-side 16 having four receive cell processors 18. On transmit-side 12, each of transmit cell processors 14 is a macro-cell having its own transmit first-in first-out (FIFO) buffer (not shown) which provides FIFO management and a transmit cell interface to the line side transmission system of the subject transmit cell processor. Each transmit FIFO buffer can contain up to four ATM cells. The transmit FIFO buffers provide the cell rate decoupling function between the system-side ATM layer and the line-side transmission system connecting the PHY layers. Management functions of each transmit FIFO buffer include passing cells from the subject transmit FIFO buffer to its transmit cell processor for transmission to the corresponding PHY layer on line-side 13, indicating to the appropriate transmit cell processor when the subject transmit FIFO buffer is full, maintaining the read and write pointers of the subject transmit FIFO buffer and detecting a FIFO overrun condition. For each transmit cell processor, idle cells are automatically inserted into the line-side transmission stream when the corresponding transmit FIFO buffer contains less than one full cell. Each transmit cell processor 14 also optionally integrates circuitry to support ATM cell payload scrambling for cells read from the corresponding transmit FIFO buffer, header check sequence (HCS) generation, and

cell header scrambling.

Detailed Description Text (3):

In FIG. 1, the transmit cell processors 14 each contain sampling circuitry to sample the input signals from the UTOPIA bus 15. The redundant sampling circuitry makes meeting set-up and hold time constraints for the bus interface difficult to satisfy since physical routing in ATM-PHY device 10 of input signals from bus 15 is different for each of the transmit cell processors 14. Timing constraints are particularly problematic for a high speed bus, such as, for example, with the 50 MHz UTOPIA bus protocol which allows a maximum of 4 ns for input set-up and 1 ns for input hold. In addition to the top-level routing delay introduced by the redundant sampling circuitry in each transmit cell processor, the routing of signals within each transmit cell processor macro-cell may not be very deterministic thereby further adding to the difficulty in predicting the timing characteristics of signals, routed through device 10.

Detailed Description Text (4):

Referring to FIG. 2, there is shown an illustrative embodiment of an ATM-PHY interface device 20 having an improved architecture for simplifying the handling of UTOPIA interface requirements in accordance with the present invention. In ATM-PHY device 20 the sampling circuitry in each of transmit cell processors 22 has been removed and replaced with localized sampling circuitry 24 located at the top level of ATM-PHY device 20 between transmit cell processors (TXCPs) 22 and UTOPIA bus 26. In the illustrative embodiment, input signals from UTOPIA bus 26 are sampled by localized sampling circuitry 24 before being passed on to the appropriate ATM transmit cell processor macro-cells 22. The local sampling of UTOPIA input signals with sampling circuit 24 in ATM-PHY interface device 20 reduces the fan-out of signals which need to be sampled. Furthermore, since the sampling logic does not consist of as many logic gates as in the redundant sampling model in FIG. 1, the sampling logic can be preferably isolated into a small area of ATM-PHY interface device 20 and optimally placed thereby reducing the delay and the variability in the delay due to the physical layout of ATM-PHY interface device 20.

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L2: Entry 5 of 9

File: USPT

Feb 5, 2002

US-PAT-NO: 6345052

DOCUMENT-IDENTIFIER: US 6345052 B1

TITLE: Method and apparatus for the reliable transition of status signals from an interface device when using a localized sampling architecture

DATE-ISSUED: February 5, 2002

INVENTOR-INFORMATION:

NAME	CITY	STATE	ZIP CODE	COUNTRY
Tse; Richard Tsz-Shiu	Vancouver			CA
McDowell; Shawn Patrick	Burnaby			CA

ASSIGNEE-INFORMATION:

NAME	CITY	STATE	ZIP CODE	COUNTRY	TYPE CODE
PMC-Sierra, Ltd.				CA	03

APPL-NO: 09/ 186159 [\[PALM\]](#)

DATE FILED: November 5, 1998

INT-CL: [07] [H04](#) [L](#) [12/56](#)

US-CL-ISSUED: 370/395.6; 370/465

US-CL-CURRENT: [370/395.6](#); [370/465](#)

FIELD-OF-SEARCH: 370/230, 370/232, 370/235, 370/395, 370/423, 370/424, 370/463, 370/395.6, 370/465

PRIOR-ART-DISCLOSED:

U.S. PATENT DOCUMENTS

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<input type="checkbox"/>	5784370	July 1998	Rich	370/395
<input type="checkbox"/>	5889778	March 1999	Huscrafft et al.	370/395
<input type="checkbox"/>	6115360	September 2000	Quay et al.	370/235

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The ATM Forum Technical Committee, "Utopia Level 2, Version 1.0", Jun. 1995.

ART-UNIT: 2662

PRIMARY-EXAMINER: Kizou; Hassan

ASSISTANT-EXAMINER: Spafford; Tim

ATTY-AGENT-FIRM: Hall, Priddy, Myers & Vande Sande

ABSTRACT:

Method and apparatus are provided for guaranteeing that transmit cell available signals transmitted from an ATM-PHY interface device conform to a communication protocol. A previous transmit cell available signal from the previous clock cycle is stored and a transmit status signal and a transmit enable signal for the current clock cycle are sampled. One of the transmit status signal and the previous transmit cell available signal are selected as the new transmit cell available signal based upon the state of the transmit enable signal and the transmit status signal.

24 Claims, 18 Drawing figures

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L2: Entry 8 of 9

File: USPT

Mar 7, 2000

DOCUMENT-IDENTIFIER: US 6034545 A

TITLE: Macrocell for data processing circuit

Brief Summary Text (5):

Typically, a data processing circuit such as a chip will include a number of macrocells that are arranged to interact with each other to perform data processing operations. Modular components such as the central processing unit, or processor core, used to apply instructions to data items read from memory, one or more caches or memories used to store instructions and data, a DMA bus master used to control activities such as data transfer, and an external memory interface for holding data to be output from the chip to memory, are examples of components which may be formed as macrocells.

Detailed Description Text (11):

The macrocell interface illustrated in FIG. 2 has separate input 210 and output 220 buses connected to input bus terminals 225 and 230, respectively. Data received at the input terminal 225 is passed over the input bus 210 to a buffer 235 which then passes that data over the path 260 to the processor core of the CPU 20. If the macrocell interface is incorporated in macrocells other than the CPU, then of course the macrocell logic receiving the data over path 260 will not be the processor core of the CPU, but will instead be the macrocell logic provided by that specific macrocell.

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L2: Entry 8 of 9

File: USPT

Mar 7, 2000

US-PAT-NO: 6034545

DOCUMENT-IDENTIFIER: US 6034545 A

TITLE: Macrocell for data processing circuit

DATE-ISSUED: March 7, 2000

INVENTOR-INFORMATION:

NAME	CITY	STATE	ZIP CODE	COUNTRY
Flynn; David Walter	Cambridge			GB

ASSIGNEE-INFORMATION:

NAME	CITY	STATE	ZIP CODE	COUNTRY	TYPE CODE
ARM Limited	Cambridge			GB	03

APPL-NO: 09/ 015927 [\[PALM\]](#)

DATE FILED: January 30, 1998

INT-CL: [07] [H03](#) [K](#) [19/177](#)

US-CL-ISSUED: 326/39; 326/56, 326/82

US-CL-CURRENT: [326/39](#); [326/56](#), [326/82](#)

FIELD-OF-SEARCH: 326/37-41, 326/56, 326/82, 326/83, 326/86

PRIOR-ART-DISCLOSED:

U.S. PATENT DOCUMENTS

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	PAT-NO	ISSUE-DATE	PATENTEE-NAME	US-CL
<input type="checkbox"/>	5585742	December 1996	Kamiya	326/56
<input type="checkbox"/>	5686844	November 1997	Hull et al.	326/46
<input type="checkbox"/>	5705938	January 1998	Kean	326/41
<input type="checkbox"/>	5850151	December 1998	Cliff et al.	326/39
<input type="checkbox"/>	5880595	March 1999	Whetsel	326/40
<input type="checkbox"/>	5894565	April 1999	Furtek et al.	326/38

ART-UNIT: 289

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e ge

PRIMARY-EXAMINER: Santamauro; Jon

ASSISTANT-EXAMINER: Le; Don Phu

ATTY-AGENT-FIRM: Nixon & Vanderhye P.C.

ABSTRACT:

The present invention provides a macrocell for a data processing circuit, comprising macrocell logic, and an interface for connecting the macrocell logic to a bus of the data processing circuit. The interface comprises: an input bus connected to an input bus terminal, an output bus connected to an output bus terminal, and a buffering circuit for buffering the output bus from the macrocell logic. Further, the interface has a mode input terminal for receiving a mode value, the mode value being arranged to control the buffering circuit. The buffering circuit is responsive to a first mode value to enter an inactive state when no data is being output from the macrocell, and is responsive to a second mode value to permanently drive the output bus. Hence, to enable the macrocell to be coupled to a unidirectional bus on the data processing circuit, the second mode value is supplied to the mode input terminal, whilst to enable the macrocell to be coupled to a bidirectional bus on the data processing circuit, the input bus terminal and output bus terminal are connected together externally to the macrocell, and the first mode value is supplied to the mode input terminal.

11 Claims, 4 Drawing figures

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L2: Entry 8 of 9

File: USPT

Mar 7, 2000

US-PAT-NO: 6034545

DOCUMENT-IDENTIFIER: US 6034545 A

TITLE: Macrocell for data processing circuit

DATE-ISSUED: March 7, 2000

INVENTOR-INFORMATION:

NAME	CITY	STATE	ZIP CODE	COUNTRY
Flynn; David Walter	Cambridge			GB

ASSIGNEE-INFORMATION:

NAME	CITY	STATE	ZIP CODE	COUNTRY	TYPE CODE
ARM Limited	Cambridge			GB	03

APPL-NO: 09/ 015927 [\[PALM\]](#)

DATE FILED: January 30, 1998

INT-CL: [07] [H03 K 19/177](#)

US-CL-ISSUED: 326/39; 326/56, 326/82

US-CL-CURRENT: [326/39](#); [326/56](#), [326/82](#)

FIELD-OF-SEARCH: 326/37-41, 326/56, 326/82, 326/83, 326/86

PRIOR-ART-DISCLOSED:

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	PAT-NO	ISSUE-DATE	PATENTEE-NAME	US-CL
<input type="checkbox"/>	5585742	December 1996	Kamiya	326/56
<input type="checkbox"/>	5686844	November 1997	Hull et al.	326/46
<input type="checkbox"/>	5705938	January 1998	Kean	326/41
<input type="checkbox"/>	5850151	December 1998	Cliff et al.	326/39
<input type="checkbox"/>	5880595	March 1999	Whetsel	326/40
<input type="checkbox"/>	5894565	April 1999	Furtek et al.	326/38

ART-UNIT: 289

h e b b g c e e f c e

c ge

PRIMARY-EXAMINER: Santamauro; Jon

ASSISTANT-EXAMINER: Le; Don Phu

ATTY-AGENT-FIRM: Nixon & Vanderhye P.C.

ABSTRACT:

The present invention provides a macrocell for a data processing circuit, comprising macrocell logic, and an interface for connecting the macrocell logic to a bus of the data processing circuit. The interface comprises: an input bus connected to an input bus terminal, an output bus connected to an output bus terminal, and a buffering circuit for buffering the output bus from the macrocell logic. Further, the interface has a mode input terminal for receiving a mode value, the mode value being arranged to control the buffering circuit. The buffering circuit is responsive to a first mode value to enter an inactive state when no data is being output from the macrocell, and is responsive to a second mode value to permanently drive the output bus. Hence, to enable the macrocell to be coupled to a unidirectional bus on the data processing circuit, the second mode value is supplied to the mode input terminal, whilst to enable the macrocell to be coupled to a bidirectional bus on the data processing circuit, the input bus terminal and output bus terminal are connected together externally to the macrocell, and the first mode value is supplied to the mode input terminal.

11 Claims, 4 Drawing figures

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L2: Entry 9 of 9

File: USPT

Nov 3, 1998

DOCUMENT-IDENTIFIER: US 5832255 A

TITLE: System and method for selecting a signal source to trigger a microprocessor counter/timer macro cell

CLAIMS:

6. A system of macro cells in an integrated micro processor as in claim 5 wherein an external signal source having an output operatively connected to an external interface pin of the microprocessor provides a trigger signal, and in which said multiplexer has an external interface signal input operatively connected to the external signal source output via the external interface pin, said multiplexer selectively connecting said counter/timer gate input to the external source output in response to connection commands on the internal data bus.

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L2: Entry 9 of 9

File: USPT

Nov 3, 1998

US-PAT-NO: 5832255

DOCUMENT-IDENTIFIER: US 5832255 A

TITLE: System and method for selecting a signal source to trigger a microprocessor counter/timer macro cell

DATE-ISSUED: November 3, 1998

INVENTOR-INFORMATION:

NAME	CITY	STATE	ZIP CODE	COUNTRY
Roberts; Michael	Vancouver	WA		
Sabha; Raed	Vancouver	WA		

ASSIGNEE-INFORMATION:

NAME	CITY	STATE	ZIP CODE	COUNTRY	TYPE	CODE
Sharp Microelectronics Technology, Inc.	Camas	WA			02	
Sharp Kabushiki Kaisha	Osaka			JP	03	

APPL-NO: 08/ 621118 [\[PALM\]](#)

DATE FILED: March 22, 1996

INT-CL: [06] [G06](#) [F](#) [1/04](#)

US-CL-ISSUED: 395/555; 395/557, 395/559

US-CL-CURRENT: [713/500](#); [713/502](#)

FIELD-OF-SEARCH: 395/555, 395/557, 395/559, 395/560, 377/107, 377/111

PRIOR-ART-DISCLOSED:

U.S. PATENT DOCUMENTS

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PAT-NO	ISSUE-DATE	PATENTEE-NAME	US-CL
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ART-UNIT: 277

PRIMARY-EXAMINER: Butler; Dennis M.

ATTY-AGENT-FIRM: Maliszewski; Gerald W. Ripma; David C.

ABSTRACT:

A system and method has been provided to selectively deliver a plurality of trigger signals to a counter/timer embedded in a microprocessor. The method provides the step of selecting a signal, from either internal or external sources, to trigger the counter/timer. If an internal source is selected, the method provides the step of selecting either a synchronous or non-synchronous signal source to trigger the counter/timer. Regardless of the source chosen, the method includes the step of generating a signal output from the selected source, and the further step of delivering the trigger signal on a dedicated connection. The method of the present invention also includes the step of counting clock cycles in response to the arrival of the trigger signal to the counter/timer. An apparatus to selectively deliver a trigger signal to a counter/timer embedded in a microprocessor from a plurality of signal sources is also provided. The apparatus includes an internal on-chip signal path extending between an internal PWM and the counter/timer, whereby the PWM can serve as the source of the trigger signal.

28 Claims, 6 Drawing figures

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Using default format because multiple data bases are involved.

L5: Entry 1 of 1

File: USPT

Sep 19, 2000

US-PAT-NO: 6122747

DOCUMENT-IDENTIFIER: US 6122747 A

TITLE: Intelligent subsystem interface for modular hardware system

DATE-ISSUED: September 19, 2000

INVENTOR-INFORMATION:

NAME	CITY	STATE	ZIP CODE	COUNTRY
Krening; Douglas N.	Larkspur	CO		
Lannan; Gregory B.	Larkspur	CO		
Schneiderwind; Michael J.	Castle Rock	CO		
Schneiderwind; Robert A.	Castle Rock	CO		
Caffrey; Robert T.	Silver Spring	MD		

US-CL-CURRENT: 713/323; 326/39, 326/41, 712/10, 712/11, 712/13, 712/15, 712/20, 712/32

Full	Title	Citation	Front	Review	Classification	Date	Reference	Abstract	Claims	KWC	Drawings
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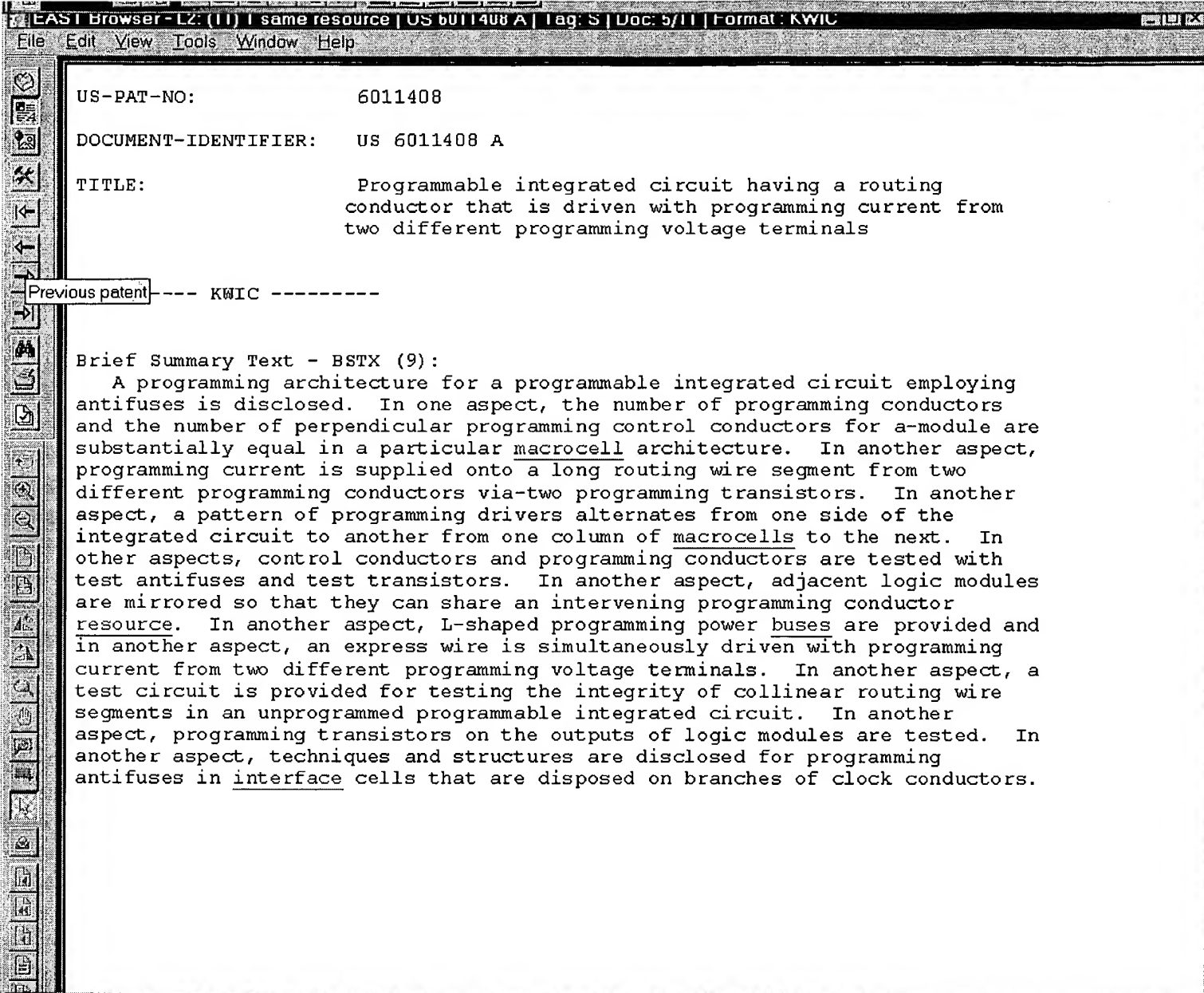
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US06011408A

United States Patent [19]**Kolze**[11] **Patent Number:** **6,011,408**[45] **Date of Patent:** **Jan. 4, 2000**

[54] **PROGRAMMABLE INTEGRATED CIRCUIT HAVING A ROUTING CONDUCTOR THAT IS DRIVEN WITH PROGRAMMING CURRENT FROM TWO DIFFERENT PROGRAMMING VOLTAGE TERMINALS**

[75] **Inventor:** Palga A. Kolze, San Jose, Calif.

[73] **Assignee:** QuickLogic Corporation, Sunnyvale, Calif.

[21] **Appl. No.:** 08/931,870

[22] **Filed:** Sep. 17, 1997

Related U.S. Application Data

[62] **Division of application No. 08/667,702, Jun. 21, 1996, Pat. No. 5,825,201.**

[51] **Int. Cl.⁷** H03K 19/177

[52] **U.S. Cl.** 326/41; 326/38

[58] **Field of Search** 326/38-41

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Primary Examiner—Jon Santamero

Assistant Examiner—Don Phu Le

Attorney, Agent, or Firm—Sigjerven, Morrill, MacPherson, Franklin & Friel LLP

[57]

ABSTRACT

A programmable integrated circuit (see FIG. 10) includes a routing conductor, i.e., "express wire," that extends substantially across the array of the integrated circuit. Because of the metal resistance through the long express wire, the express wire is simultaneously supplied with programming current from two different programming voltage terminals. Thus, programming current may be supplied to an electrode of an antifuse being programmed using programming current flowing through two separate programming voltage terminals. One programming voltage terminal supplies programming current via a first programming transistor and a first programming conductor to the express wire near one end of the programming conductor whereas another programming voltage terminal supplies programming current via a second programming transistor and a second programming conductor to the express wire near an opposite end of the express wire. The programming drivers that drive the first and second programming conductors are disposed adjacent opposite sides of the integrated circuit.

5 Claims, 39 Drawing Sheets

